Trend Study 3-17-01

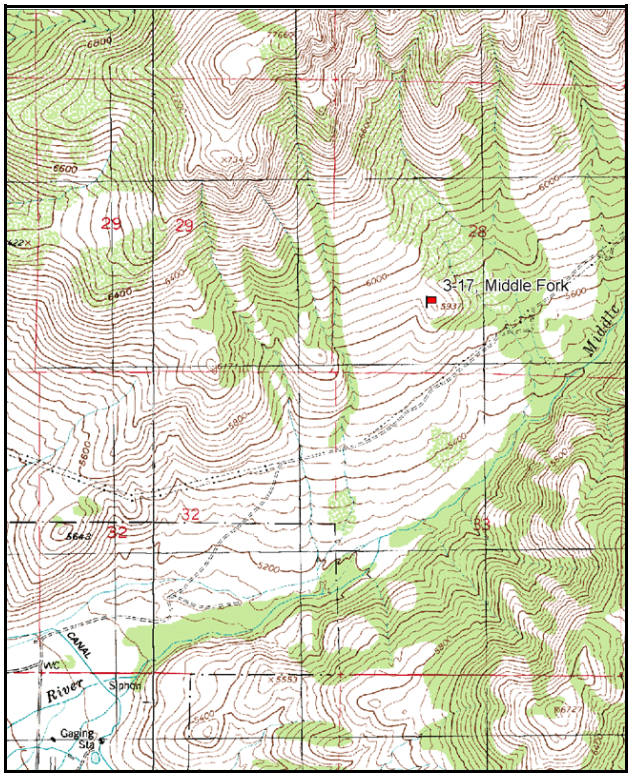
Study site name: Middle Fork . Vegetation type: Low Sagebrush .

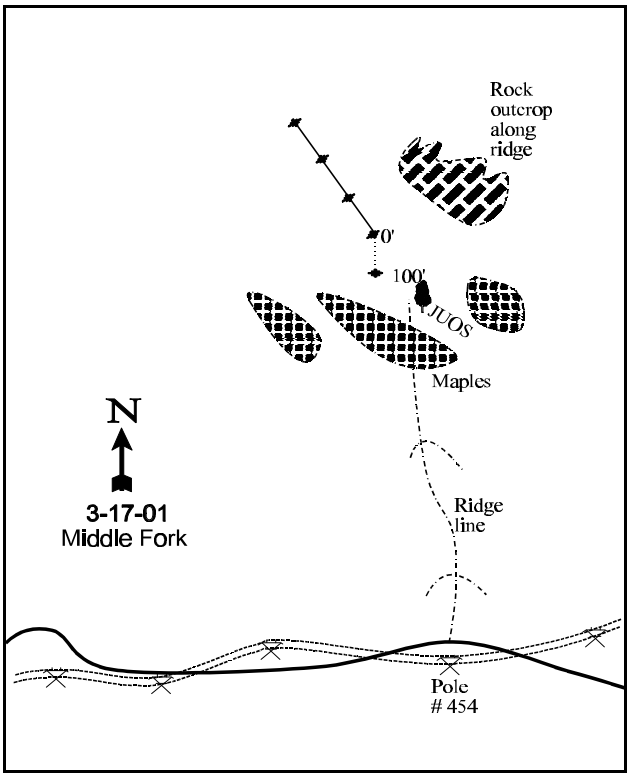
Compass bearing: frequency baseline 165 degrees magnetic.

Frequency belt placement: Line 1 (11 & 71ft), line 2 (34ft), line 3 (59ft), line 4 (95ft). Rebar: belt 3 on 1 ft.

LOCATION DESCRIPTION

From 5500 East and 2200 North in Eden, proceed 0.4 miles to a bend. Continue east, 1.9 miles further, to where the main road bends to the southeast. Continue straight for 1.9 miles to the state land (middle fork wildlife management area). From the sign, drive 0.1 miles to a three way intersection. Stay left and go through the gate. Continue east 0.05 miles to a fork. Stay left. From the fork continue 0.05 miles to a creek. Cross the creek and continue down a ripped rough road which is now a horse trail for 0.8 miles, going under power lines, to pole #454. Park here and walk up the ridge line beyond the maples to a lone juniper. The 100-foot stake of the frequency baseline is 30 paces away at a bearing of 337 degrees magnetic.





Map Name: Brown's Hole

Diagrammatic Sketch

Township 7N , Range 2E , Section 28

UTM 4573300 N 438694 E

DISCUSSION

Trend Study No. 3-17

The Middle Fork study samples a low sagebrush/grass community overlooking the Middle Fork of the Ogden River. The study lies on a rocky, 20% slope with a southwest aspect. Elevation of the study site is 5,900 feet. The site lies within the Middle Fork Wildlife Management Area owned by the DWR. Although it was heavily grazed to some extent in the past, there are no recent signs of livestock use. In 1996, quadrat frequency of elk pellet groups was moderate with that of deer being light. Quadrat frequency of both elk and deer pellets declined in 2001. Pellet group transect data taken in 2001 estimated 7 elk days use/acre (18 edu/ha) and 15 deer days use/acre (36 ddu/ha). Moose and grouse pellets were also identified on the site in 2001.

The soil is shallow and very rocky with large rocks and rock outcrops abundant on the surface. Soil texture is a clay loam, with a slightly acidic soil reaction (pH of 6.4). Estimated effective rooting depth (see methods) is shallow at less than 9 inches. Due to the rocky nature of the site, average soil temperature was high at 76°F as the soil could only be probed to about 9 inches in depth. An erosion condition class conducted in 2001 determined soils to be stable with minimal erosion.

The most abundant browse is low sagebrush (*Artemisia arbuscula*) which accounted for about 80% of the shrub cover in 1996 and 2001. Mature plants average about one foot in height and show mostly light with some moderate utilization. In 1996 and 2001, recruitment from young plants was high, averaging 20%. Average leader growth is just over 1 inch in 2001.

Other more valuable species in terms of preference are mountain big sagebrush, antelope bitterbrush and serviceberry. However, these species are found in small numbers and are not abundant enough to be considered key species. High competition from a dense weedy understory makes reproduction of these species very difficult, especially with the current drought. They have been moderately to heavily hedged in the past, yet current use is light to moderate. A spreading, but still open stand of bigtooth maple provides fair resting cover, but thermal cover would be limited on the site in winter.

Grasses are moderately abundant and diverse. The most common species is bulbous bluegrass, providing 50% of the grass cover in 1996, increasing to 58% in 2001. Bulbous bluegrass significantly increased in nested frequency and doubled in cover in 2001. Bluebunch wheatgrass also increased in nested frequency and cover in 2001. Cheatgrass and Japanese brome are found on the site and produced 15% of the grass cover in 1996. However, due to drought for the past 2 years these species decreased significantly in nested frequency in 2001. Other somewhat common perennial grasses include Sandberg bluegrass and subalpine needlegrass. Forbs are also fairly abundant and diverse. Yet, the composition is poor with pacific aster, western yarrow, yellow salsify, and mulesears wyethia providing the majority of the forb cover.

1985 APPARENT TREND ASSESSMENT

Overall range trend appears stable. There is a variety of browse and herbaceous forage available. The lack of reproduction of the sagebrush and bitterbrush is the one troubling factor.

1990 TREND ASSESSMENT

Sagebrush canopy cover on this study, comprised of low sagebrush and a smaller amount of mountain big sagebrush, averages almost 15%. The low sagebrush population is relatively stable in terms of numbers, but the percentage of decadent plants has increased to 53%. This could be explained by the very high densities in conjunction with the extended drought. Some areas have an abundance of seedlings. No young mountain big

sagebrush could be identified, as the population also shows an increase in the percentage of decadent shrubs. The sagebrush display average vigor and generally moderate hedging. Bitterbrush is uncommon, but several young plants were encountered. The oaks on top of the hill are kept short by heavy use. Grasses are dense, including several species of annual bromes. Sixteen species of perennial forbs were encountered. There is no sign of soil erosion.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous - stable, but poor composition (3)

1996 TREND ASSESSMENT

Trend for soil is up with a decline in percent bare ground from 6% to <1%. Vegetation and litter cover are abundant, well dispersed, and adequately protect the soil from erosion. Trend for low sagebrush is up slightly. However, density has declined slightly along with percent decadence which has also declined from 53% to 11%. Recruitment is currently excellent with a biotic potential (proportion of seedlings) of 19%, and 21% of the population consists of young plants. Utilization is light to moderate. The more preferred mountain big sagebrush and antelope bitterbrush occur in very small numbers. Some of the change in density in these species is the result of the much larger, more representative sample used in 1996. The lack of dead plants for bitterbrush suggest that the previous samples overestimated its density. This also appears to be the case for mountain big sagebrush which declined by over 200 plants/acre, but only 40 dead plants/acre were estimated. Both of these species seem to be just hanging on at this site and without better reproduction in the future may further decline in their respective densities. The herbaceous understory is abundant but composition is very poor. Sum of nested frequency for perennial grasses has remained similar to 1990, yet the preferred bluebunch wheatgrass has declined significantly in sum of nested frequency. Sandberg bluegrass has also declined significantly in nested frequency, while bulbous bluegrass has increased dramatically from a quadrat frequency of only 14% in 1990 to 81% in 1996. Cheatgrass and Japanese brome are also common. Sum of nested frequency for perennial forbs has increased since 1990. However, most of the increase comes from a significant 15-fold increase in sum of nested frequency for yellow salsify (11 to 169). Currently, western yarrow, pacific aster, yellow salsify and mulesears wyethia provide 72% of the forb cover. Trend for the herbaceous understory is considered slightly down do to the undesirable compositional changes.

TREND ASSESSMENT
soil - up (5)
browse - up slightly for low sagebrush (4)
herbaceous - down slightly with a poor composition of annuals and weeds (2)

2001 TREND ASSESSMENT

Trend for soil is stable. Soils are stable with minimal erosion due to abundant protective cover from vegetation and litter. Trend for browse is stable. The most abundant species, low sagebrush, has a high but stable proportion of young plants in the population. Percent decadency remains stable, vigor is generally good, and use remains light to moderate. More preferred species such as mountain big sagebrush and bitterbrush remain in very low densities without much of a chance of expanding in the future. High competition from the abundant and weedy understory makes reproduction of these preferred, low density species very difficult, especially in the current drought. Trend for the herbaceous understory is stable. Sum of nested frequency for herbaceous perennials remained identical to 1996 levels. Sum of nested frequency for perennial grasses significantly increased with the increase in bulbous bluegrass and Sandberg bluegrass. Sum of nested frequency for perennial forbs decreased. Annual species, especially grasses, decreased in sum of

nested frequency due to drought. The composition remains less than desirable with a high proportion of weedy species being present.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - stable (3)

HERBACEOUS TRENDS --
Herd unit 03 , Study no: 17

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'85	'90	'96	'01	'85	'90	'96	'01	'96	'01
G	Agropyron dasystachyum	-	-	10	8	-	-	4	5	.09	.07
G	Agropyron spicatum	bc233	c254	a173	ab216	79	88	68	82	4.50	9.06
G	Agropyron trachycaulum	-	-	-	6	-	-	-	3	-	.13
G	Bromus japonicus (a)	-	-	b211	a42	-	-	70	20	1.26	.17
G	Bromus tectorum (a)	-	-	b132	a53	-	-	41	23	1.42	.60
G	Danthonia californica	-	-	-	1	-	-	-	1	-	.03
G	Dactylis glomerata	a-	a-	a-	b15	-	-	-	5	-	1.55
G	Koeleria cristata	-	-	2	-	-	-	1	-	.00	-
G	Melica bulbosa	b42	ab26	ab28	a8	18	11	11	4	.20	.07
G	Poa bulbosa	a4	a30	b265	c315	1	14	81	92	9.23	20.61
G	Poa pratensis	-	-	-	-	-	-	-	-	-	.00
G	Poa secunda	155	239	32	143	58	85	14	59	.53	3.48
G	Stipa columbiana	a1	a1	b43	a-	1	1	16	-	1.00	-
Total for Annual Grasses		0	0	343	95	0	0	111	43	2.69	0.77
Total for Perennial Grasses		435	550	553	712	157	199	195	251	15.58	35.03
Total for Grasses		435	550	896	807	157	199	306	294	18.27	35.81
F	Achillea millefolium	ab9	a3	b19	ab9	5	1	9	4	.31	.16
F	Agoseris glauca	ab20	b33	ab21	a11	11	19	11	7	.13	.07
F	Allium spp.	b38	a-	a-	a3	20	-	-	1	-	.00
F	Arabis spp.	-	-	1	-	-	-	1	-	.00	-
F	Artemisia ludoviciana	b71	b45	a5	a11	25	20	2	5	.06	.33
F	Astragalus beckwithii	-	-	3	-	-	-	1	-	.03	-
F	Aster chilensis	b69	b70	a21	b46	23	24	8	18	.92	2.21
F	Balsamorhiza sagittata	b18	a6	a1	a4	9	4	1	2	.21	.45
F	Borago officinalis	8	-	-	-	3	-	-	-	-	-
F	Calochortus nuttallii	5	2	-	-	4	1	-	-	-	-
F	Castilleja spp.	-	4	1	2	-	1	1	2	.03	.06
F	Cirsium spp.	10	10	5	3	6	5	3	1	.04	.03

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'85	'90	'96	'01	'85	'90	'96	'01	'96	'01
F	Collomia linearis (a)	-	-	$_{b}$23	$_{a}$10	-	-	10	5	.71	.05
F	Comandra pallida	7	4	7	-	3	4	3	-	.18	-
F	Collinsia parviflora (a)	-	-	1	5	-	-	1	4	.00	.02
F	Crepis acuminata	3	-	-	-	1	-	-	-	-	-
F	Descurainia pinnata (a)	-	-	-	3	-	-	-	1	-	.00
F	Draba spp. (a)	-	-	41	45	-	-	14	19	.12	.14
F	Eriogonum cernuum (a)	-	-	-	-	-	-	-	-	-	-
F	Erodium cicutarium (a)	-	-	$_{a}$1	$_{b}$21	-	-	1	11	.00	.34
F	Erigeron strigosis	-	-	11	5	-	-	5	3	.22	.01
F	Galium aparine (a)	-	-	1	-	-	-	1	-	.00	.00
F	Grindelia squarrosa	-	-	4	-	-	-	1	-	.03	-
F	Hackelia patens	$_{a}$-	$_{b}$26	$_{ab}$7	$_{a}$4	-	9	4	3	.19	.06
F	Holosteum umbellatum (a)	-	-	14	-	-	-	4	-	.16	-
F	Lappula occidentalis (a)	-	-	-	2	-	-	-	1	-	.03
F	Lactuca serriola	-	9	2	1	-	3	1	1	.00	.00
F	Lomatium dissectum	$_{a}$-	$_{a}$2	$_{b}$33	$_{b}$31	-	1	15	16	.37	1.47
F	Lupinus argenteus	1	5	3	4	1	3	1	2	.15	.63
F	Machaeranthera spp	-	-	57	-	-	-	22	-	.23	-
F	Microsteris gracilis (a)	-	-	-	1	-	-	-	1	-	.00
F	Phlox longifolia	-	-	-	1	-	-	-	1	-	.00
F	Polygonum douglasii (a)	-	-	14	-	-	-	7	-	.03	-
F	Senecio integerrimus	3	3	-	-	1	1	-	-	-	-
F	Taraxacum officinale	$_{a}$-	$_{a}$-	$_{ab}$8	$_{b}$12	-	-	4	5	.08	.02
F	Tragopogon dubius	$_{a}$4	$_{a}$11	$_{c}$169	$_{b}$81	2	7	71	36	2.69	1.62
F	Unknown forb-perennial	$_{b}$29	$_{a}$-	$_{a}$-	$_{a}$-	15	-	-	-	-	-
F	Viola spp.	-	-	-	1	-	-	-	1	-	.00
F	Wyethia amplexicaulis	$_{a}$14	$_{a}$10	$_{b}$44	$_{b}$35	5	5	18	18	3.80	3.68
Total for Annual Forbs		0	0	95	87	0	0	38	42	1.04	0.61
Total for Perennial Forbs		309	243	422	264	134	108	182	126	9.72	10.86
Total for Forbs		309	243	517	351	134	108	220	168	10.77	11.47

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 03 , Study no: 17

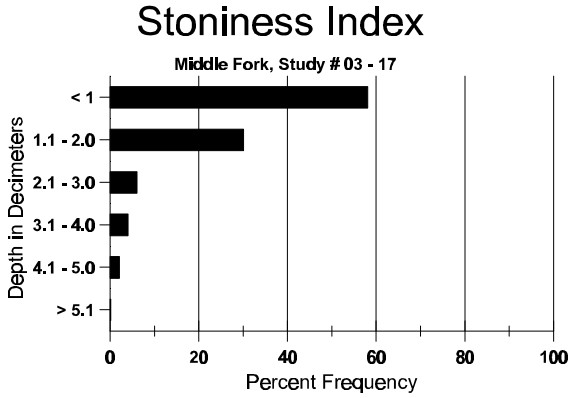
Type	Species	Strip Frequency '96	Strip Frequency '01	Average Cover % '96	Average Cover % '01
B	Acer grandidentatum	2	1	1.25	1.70
B	Artemisia arbuscula	92	88	11.80	13.00
B	Artemisia tridentata vaseyana	7	1	1.49	.38
B	Gutierrezia sarothrae	9	17	.26	.53
B	Purshia tridentata	1	1	-	-
Total for Browse		111	108	14.81	15.62

BASIC COVER --
Herd unit 03 , Study no: 17

Cover Type	Nested Frequency '96	Nested Frequency '01	Average Cover % '85	Average Cover % '90	Average Cover % '96	Average Cover % '01
Vegetation	382	365	9.25	12.00	48.04	56.20
Rock	264	224	14.50	15.75	19.16	19.40
Pavement	136	127	2.75	9.50	2.04	2.82
Litter	389	357	55.50	56.50	57.15	45.01
Cryptogams	83	82	1.00	.50	.52	1.67
Bare Ground	46	90	17.00	5.75	.34	2.26

SOIL ANALYSIS DATA --
Herd Unit 03, Study no: 17, Middle Fork

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
8.8	7602 (9.1)	6.4	38.6	32.4	29.0	3.6	13.8	105.6	.4



PELLET GROUP FREQUENCY --
Herd unit 03 , Study no: 17

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'96	'01	01	01
Rabbit	1	-	-	-
Elk	25	9	96	7 (18)
Deer	8	4	191	15 (36)
Cattle	-	1	-	-

BROWSE CHARACTERISTICS --
Herd unit 03 , Study no: 17

AGE	YR	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches)		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4		Ht.	Cr.	
Acer grandidentatum																		
S	85	3	-	-	-	-	-	-	-	-	3	-	-	-	200			3
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	85	14	-	-	-	-	-	-	-	-	14	-	-	-	933			14
	90	6	-	-	2	-	-	2	-	-	10	-	-	-	666			10
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	85	1	-	-	-	-	-	-	-	-	1	-	-	-	66	14	10	1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1
X	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'85	00%	00%	00%	-33%
'90	00%	00%	00%	-94%
'96	00%	00%	00%	-50%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'85	999	Dec:	-
	'90	666		-
	'96	40		-
	'01	20		

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier utahensis																		
Y	85	-	4	3	-	-	-	-	-	-	7	-	-	-	466			7
	90	-	8	-	-	-	-	-	-	-	8	-	-	-	533			8
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
D	85	-	-	1	-	-	1	-	-	-	1	-	-	1	133			2
	90	-	3	-	1	-	-	-	-	-	3	-	-	1	266			4
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'85	44%	56%	11%	+25%
'90	92%	00%	08%	
'96	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'85	599	Dec:	22%	
'90	799		33%	
'96	0		0%	
'01	0		0%	

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia arbuscula																		
S	85	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	90	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	96	63	-	-	-	-	-	-	-	-	63	-	-	-	1260			63
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	85	16	-	-	-	-	-	-	-	-	16	-	-	-	1066			16
	90	-	1	-	-	-	-	-	-	-	1	-	-	-	66			1
	96	70	1	-	-	-	-	-	-	-	66	-	5	-	1420			71
	01	80	-	-	-	-	-	-	-	-	80	-	-	-	1600			80
M	85	77	-	-	-	-	-	-	-	-	67	-	10	-	5133	10	14	77
	90	21	25	4	-	-	-	-	-	-	50	-	-	-	3333	12	18	50
	96	132	88	2	-	-	-	-	-	-	203	-	19	-	4440	13	21	222
	01	239	49	2	3	-	-	-	-	-	287	1	5	-	5860	12	26	293
D	85	10	-	-	-	-	-	-	-	-	6	-	4	-	666			10
	90	29	25	3	-	-	-	-	-	-	35	-	-	22	3800			57
	96	15	23	-	-	-	-	-	-	-	24	-	8	6	760			38
	01	42	12	-	1	-	-	-	-	-	38	-	3	14	1100			55
X	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	780			39
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	500			25

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'85	00%	00%	14%	+ 5%
'90	47%	06%	20%	- 8%
'96	34%	.60%	11%	+23%
'01	14%	.46%	05%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'85	6865	Dec:	10%
	'90	7199		53%
	'96	6620		11%
	'01	8560		13%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
Y	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	85	6	-	-	-	-	-	-	-	-	6	-	-	-	400	26	19	6
	90	4	-	-	-	-	-	-	-	-	4	-	-	-	266	29	41	4
	96	6	3	-	-	-	-	-	-	-	9	-	-	-	180	26	47	9
	01	4	-	-	-	-	-	-	-	-	4	-	-	-	80	-	-	4
D	85	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	90	2	1	-	-	-	-	-	-	-	2	-	-	1	200			3
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
X	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'85	00%	00%	00%	-13%
'90	14%	00%	14%	-57%
'96	30%	00%	00%	-40%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'85	533	Dec:	25%
	'90	466		43%
	'96	200		0%
	'01	120		0%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Gutierrezia sarothrae																		
S	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	46	-	-	-	-	-	-	-	-	46	-	-	-	920			46
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	10	-	-	-	-	-	-	-	-	10	-	-	-	200			10
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	85	2	-	-	-	-	-	-	-	-	2	-	-	-	133	12	9	2
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66	9	11	1
	96	10	-	-	-	-	-	-	-	-	10	-	-	-	200	9	11	10
	01	38	-	-	-	-	-	-	-	-	37	1	-	-	760	9	25	38

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'85	00%	00%	00%	-50%
'90	00%	00%	00%	+84%
'96	00%	00%	00%	+47%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'85	133	Dec:	-
	'90	66		-
	'96	400		-
	'01	760		-

Purshia tridentata																		
Y	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	1	1	-	-	-	-	-	-	-	2	-	-	-	133			2
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	85	-	-	1	-	-	-	-	-	-	1	-	-	-	66	8	24	1
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66	11	31	1
	96	-	2	-	-	-	-	-	-	-	2	-	-	-	40	20	54	2
	01	-	-	-	-	1	-	-	-	-	1	-	-	-	20	14	55	1
D	85	-	-	-	-	-	1	-	-	-	1	-	-	-	66			1
	90	1	1	-	-	-	-	-	-	-	1	-	-	1	133			2
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'85	00%	100%	00%	+60%
'90	40%	00%	20%	-88%
'96	100%	00%	00%	-50%
'01	100%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'85	132	Dec:	50%
	'90	332		40%
	'96	40		0%
	'01	20		0%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Quercus gambelii																		
X	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'85	00%	00%	00%
'90	00%	00%	00%
'96	00%	00%	00%
'01	00%	00%	00%

Total Plants/Acre (excluding Dead & Seedlings)			%Change	
	'85	0	Dec:	-
	'90	0		-
	'96	0		-
	'01	0		-